



FEMA *Kentucky* UNBRIDLED SPIRIT™ URS

North Elkhorn Risk MAP Early Demonstration
Project

Discovery Meeting
Monday, November 22, 2010
6:00 p.m.

Agenda

- Risk MAP Overview
- Project Goals
- Project Overview
- Next Steps
- Presentation of Discovery Map

Introduction

- What is Risk?
 - The possibility of suffering harm or loss; danger; a factor, a thing, element, or course involving uncertain danger; a hazard.
- Hazard Mitigation Planning is the process the state and local governments use to identify risks and vulnerabilities associated with natural disasters, and to develop long-term strategies for protecting people and property from future hazard events.

FEMA Funded Projects in Lexington

- Risk Map
- Updates to Hazard Mitigation Plan (grant application submitted)
- North Elkhorn Early Demonstration Project



What is Risk MAP?

Through collaboration with State, Local, and Tribal entities, Risk MAP will deliver quality data that increases public awareness and with the goal of reducing risk to life and property



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Risk MAP



Risk MAP is here because new science is available that enables FEMA to:

- Develop reliable and accurate maps to **identify** communities' risks
- More fully **assess** the level of flood risk that communities face
- Provide guidance to help communities develop better **plans** for mitigating risk
- Arm communities with the tools and information needed to **communicate** about risk and mitigation more clearly and confidently to their constituents

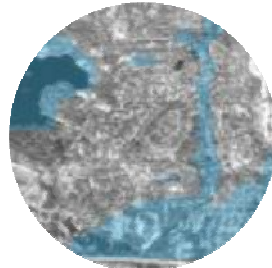
Progression of Assessing Risk



- Map Modernization used increasingly-available technology to increase the quality, reliability, and availability of flood hazard maps and data
- It focused on digitizing maps to provide timely, accurate information to community planners



Risk MAP further enhances the maps, involves communities during the assessment and planning stages, and guides and encourages them to communicate risk to their constituents

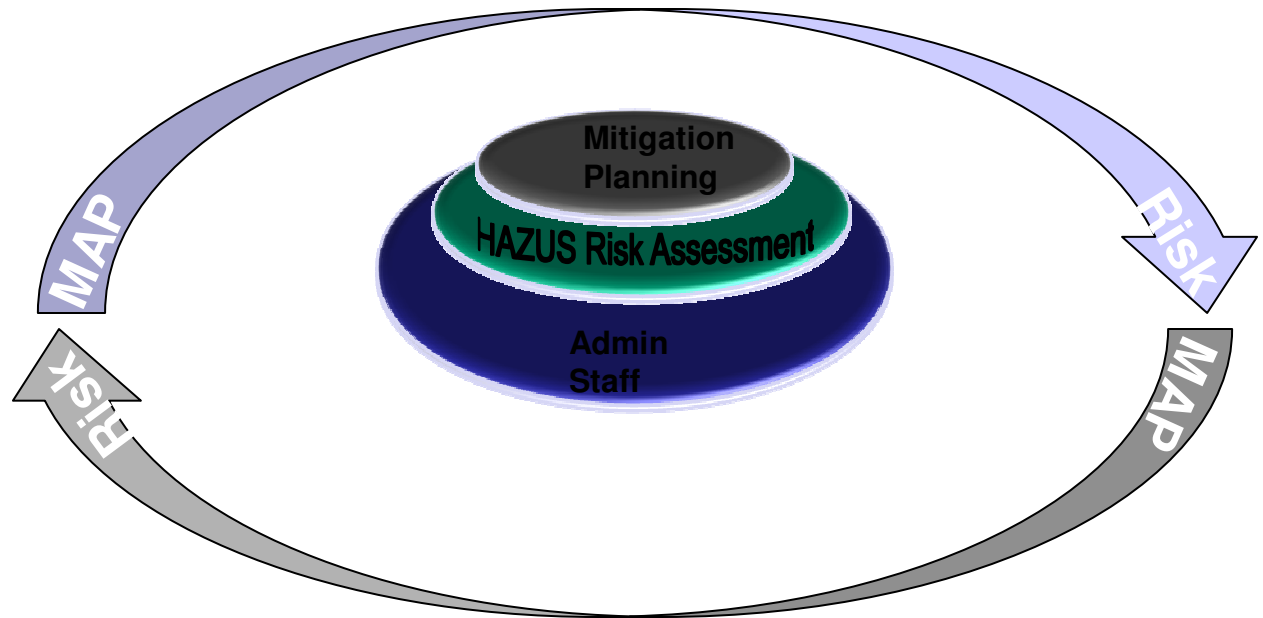


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More than Risk MAP

- Identify
- Plan
- Execute
- Study
- Act



Integration of flood mapping, risk assessment tools, and mitigation planning will be leveraged to achieve the North Elkhorn Early Demonstration Project goals.

Project Goals

- Identify Stakeholders
- Identify Flood Hazards
- Conduct Risk Assessment
- Plan for Hazards
- Identify Mitigation Alternatives
- Communicate Risk



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Stakeholders' roles

- Provide data based on expertise
 - Identify critical facilities
 - Identify ongoing and future projects
 - Identify areas of need
 - Identify local planning documents
- Share ideas
- Review data and deliverables
- Prepare for risk
- Mitigate risk

Project Overview

- KDOW awarded funding from FEMA to conduct Risk MAP “pilot” on USGS HUC 12 watershed
- North Elkhorn selected for variety of factors
- Fayette County already funded for DFIRM update in federal FY 2009
- “Pilot” will perform Risk MAP studies with intent to report results to FEMA



Project Overview, continued

- Current efforts
 - LIDAR
 - Structures Surveyed: 354 detailed structures, 88 limited detailed structures
 - 32.8 miles detailed streams, 151 miles limited detail streams, 117 redelineations being conducted, 17.2 miles approximate studies,
- What Risk MAP adds
 - Differing approach
 - Deliverables in addition to standard DFIRM data



Watershed Approach

Why is this important?

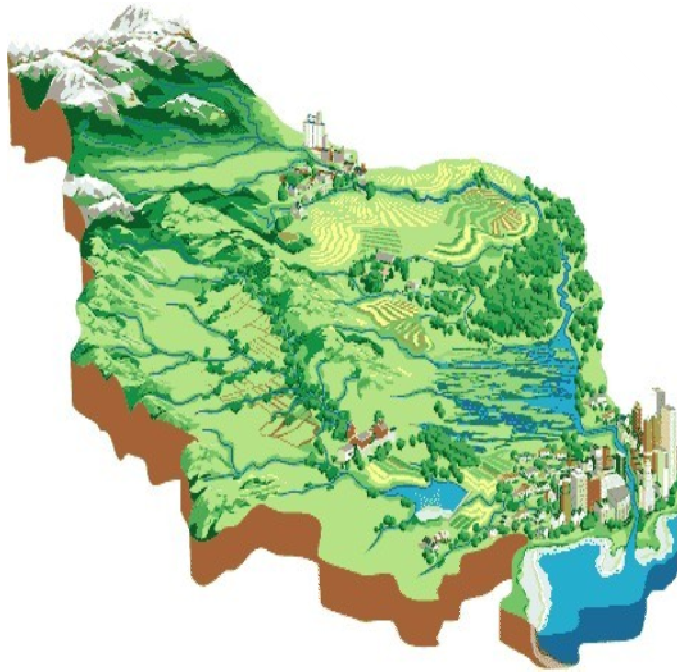
- Aligns FEMA with agencies and scientific community who use watershed approach

What is the Watershed Approach?

- Uses the watershed as a study framework
- Evaluation of need to include unstudied stream reaches connecting multiple studied stream reaches within a watershed
- Areas for data processing may be identified on a watershed basis

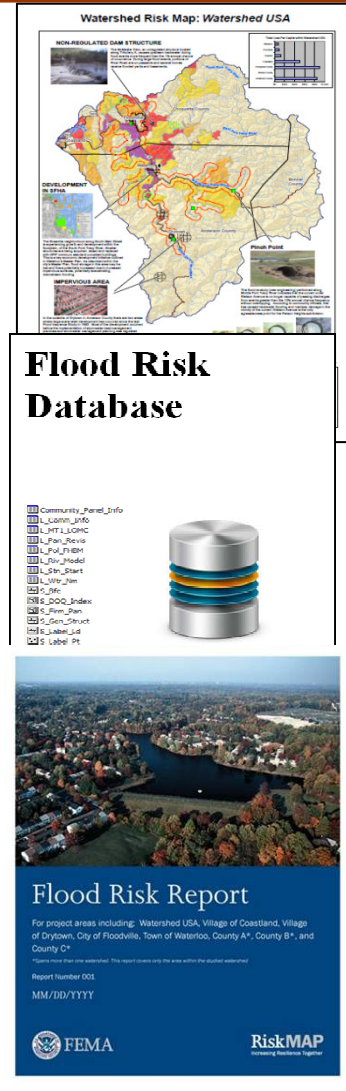
Why a watershed approach?

- Creates a more accurate, holistic picture of risk
- Helps evaluate engineering gaps
- Increases data credibility

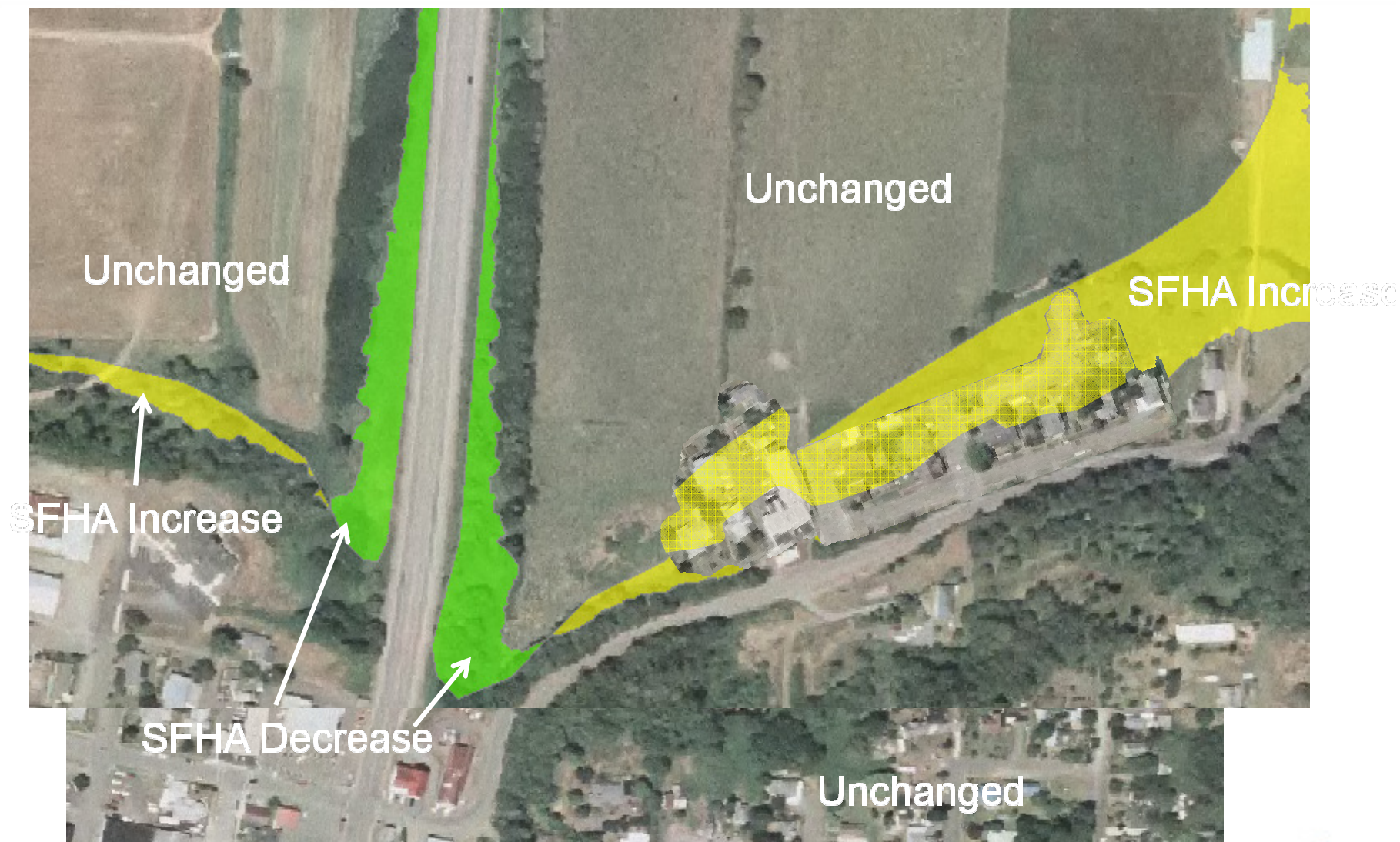


Risk MAP Deliverables

- Discovery Map
- Flood Risk Database
 - Changes Since Last FIRM
 - Multi-Frequency Depth Grids
 - HAZUS Risk Assessment
- Flood Risk Report



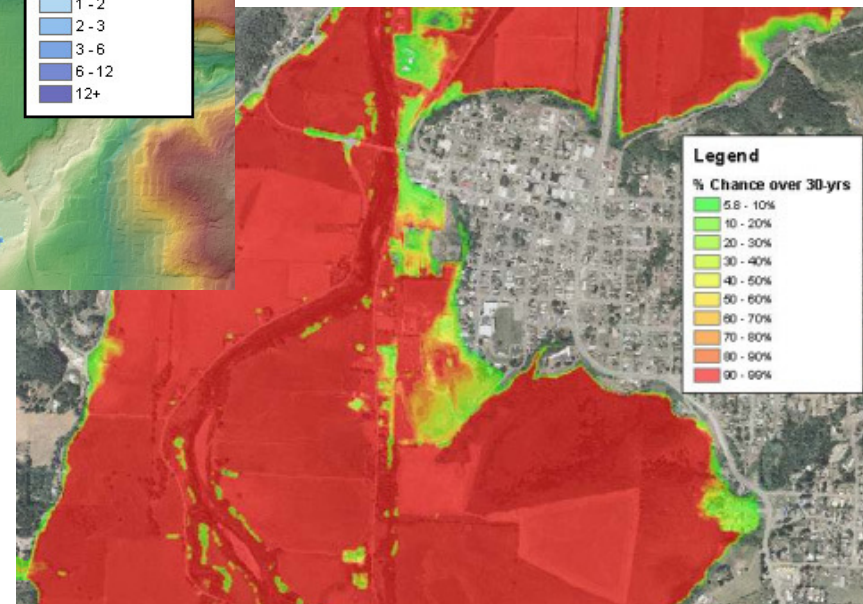
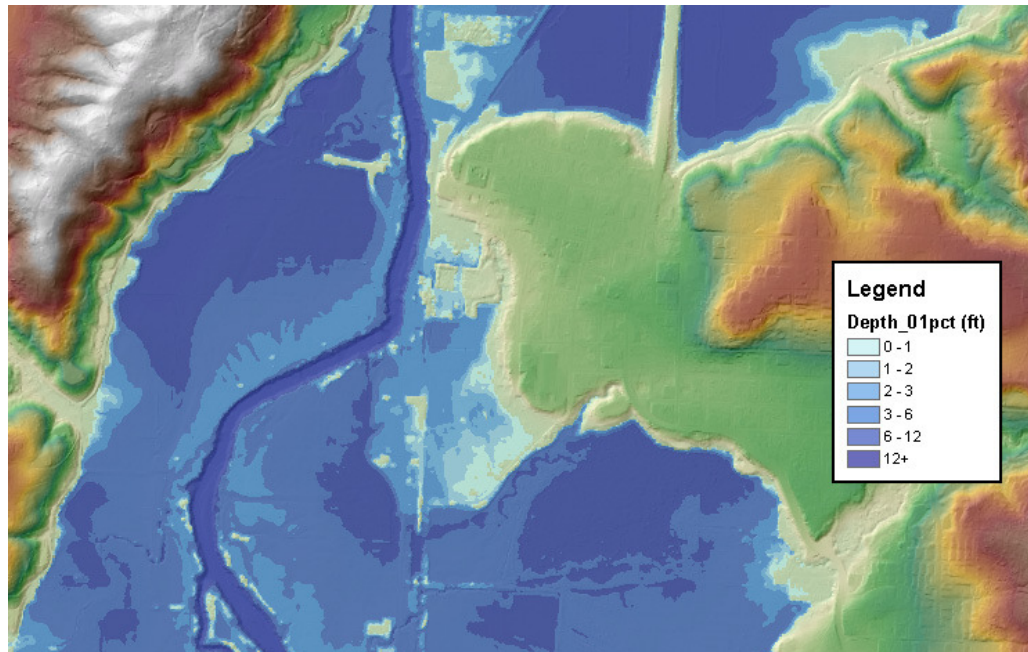
Changes Since Last FIRM



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Multi-Frequency Depth Grids

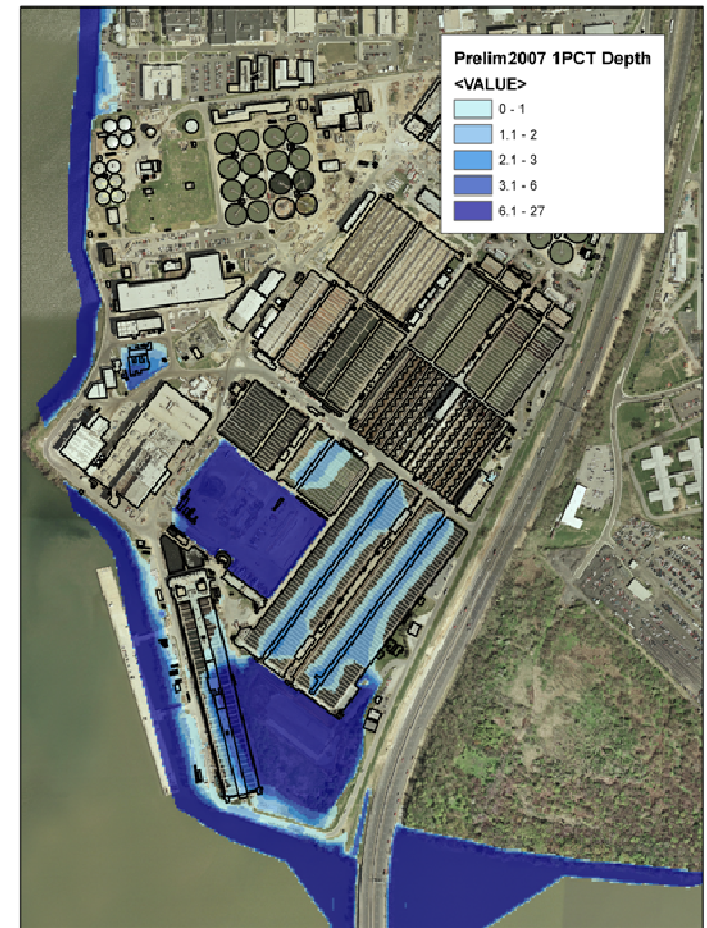


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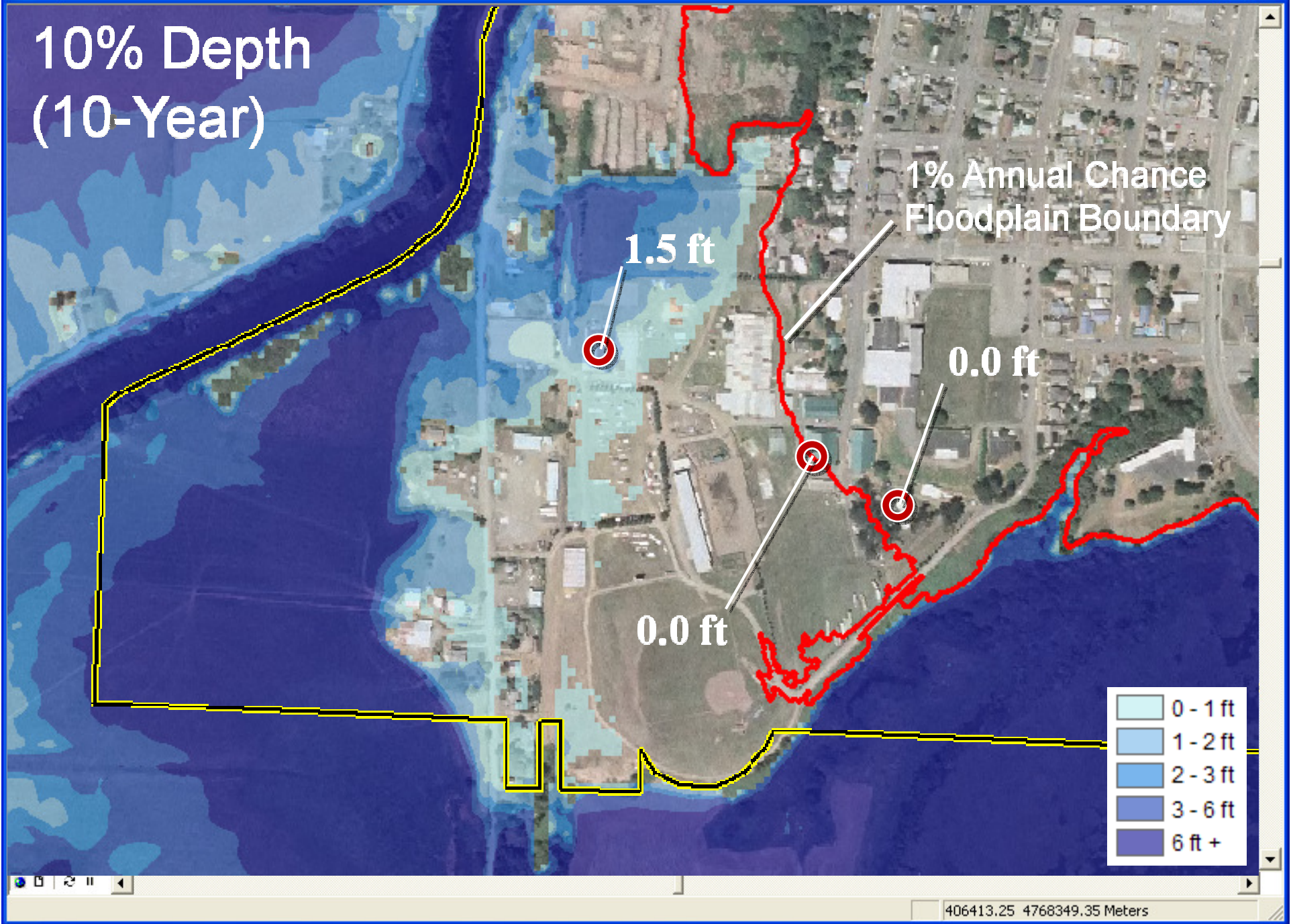
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Flood Depth Grids

- Flood Depth Grids
 - Riverine: 10%, 4%, 2%, 1%, & 0.2% Annual Chance (A.C.) Floods



10% Depth (10-Year)

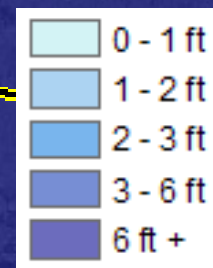


4% Depth (25-Year)

2.8 ft

0.0 ft

0.0 ft

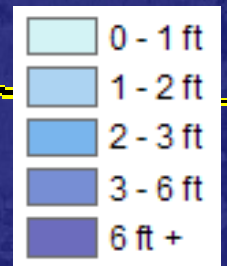


2% Depth (50-Year)

3.8 ft

0.0 ft

0.0 ft

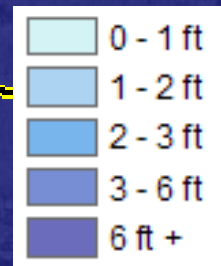


1% Depth (100-Year)

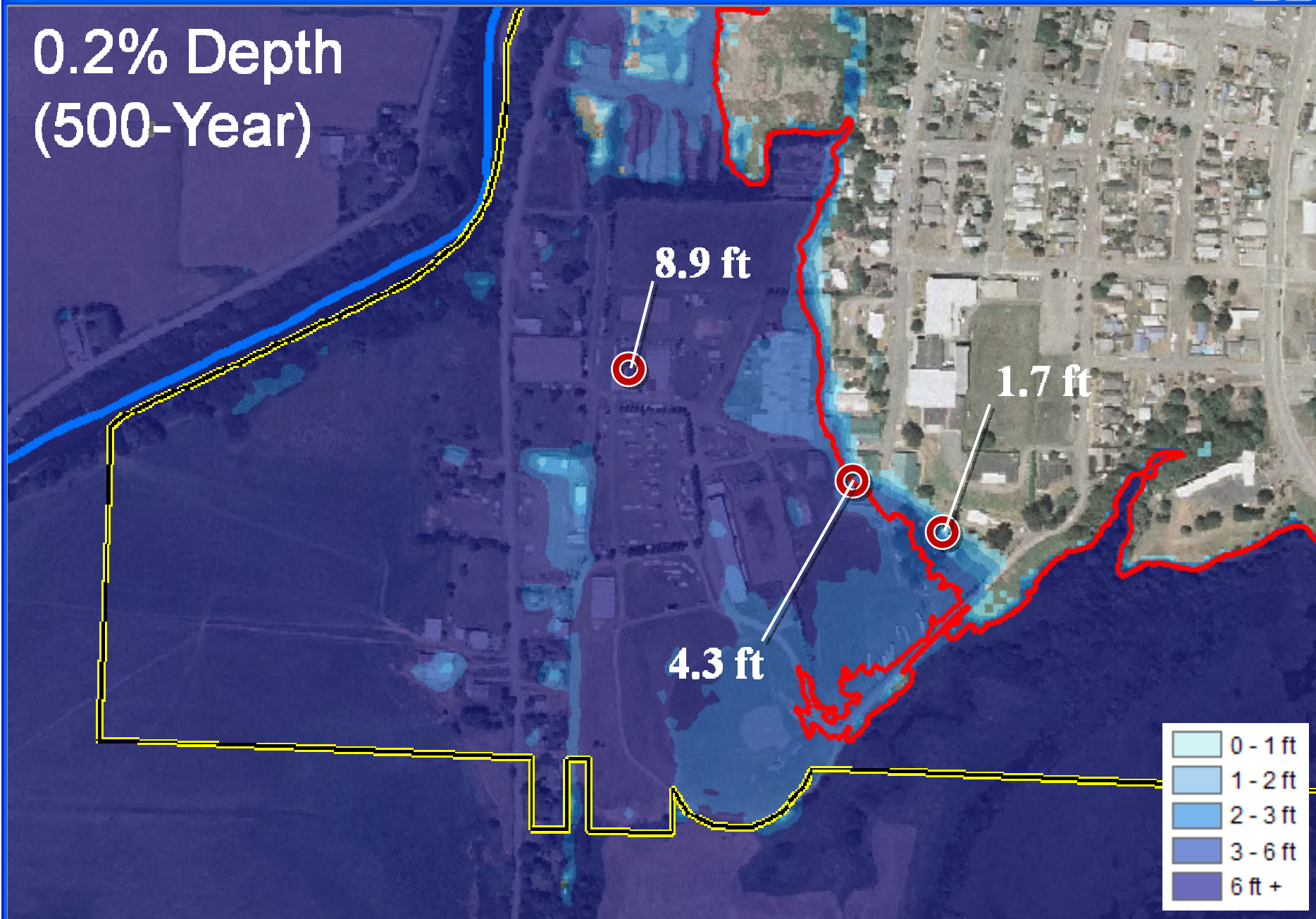
4.7 ft

0.0 ft

0.1 ft

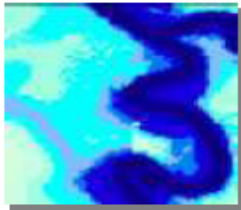


0.2% Depth (500-Year)



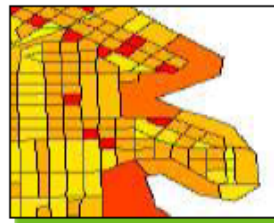
Tool used... HAZUS-Multi Hazard

**Flood Information
Tool**



**Depth
of Flooding**

**HAZUS
Analysis**



**Loss
Estimation**



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Risk Assessments



Risk assessments include:

- Initial baseline risk assessment
- Refined baseline based on new or community-supplied data
- Digital products/maps to display flood risk

Why risk assessments?

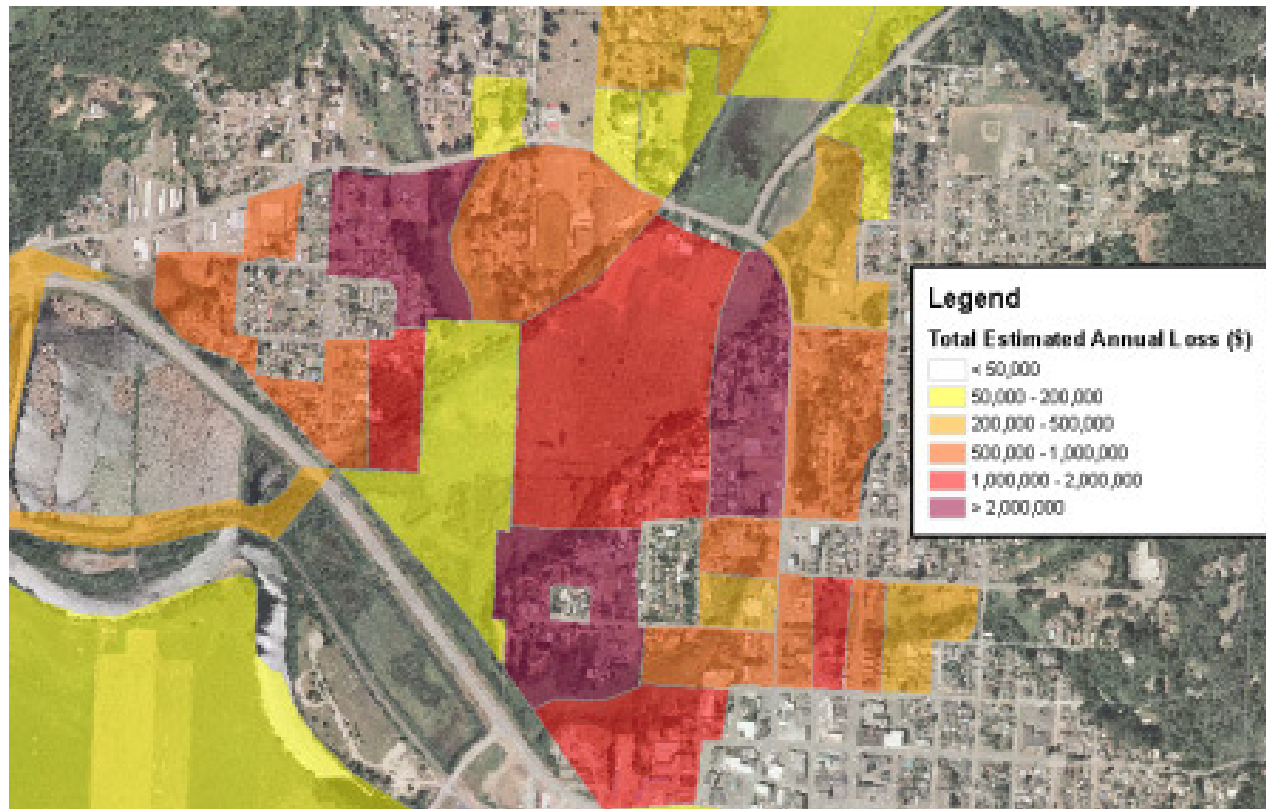
- Better mitigation plans
- More effective use government funds.

Products:

- Annualized Loss Estimation study
- Base and enhanced products



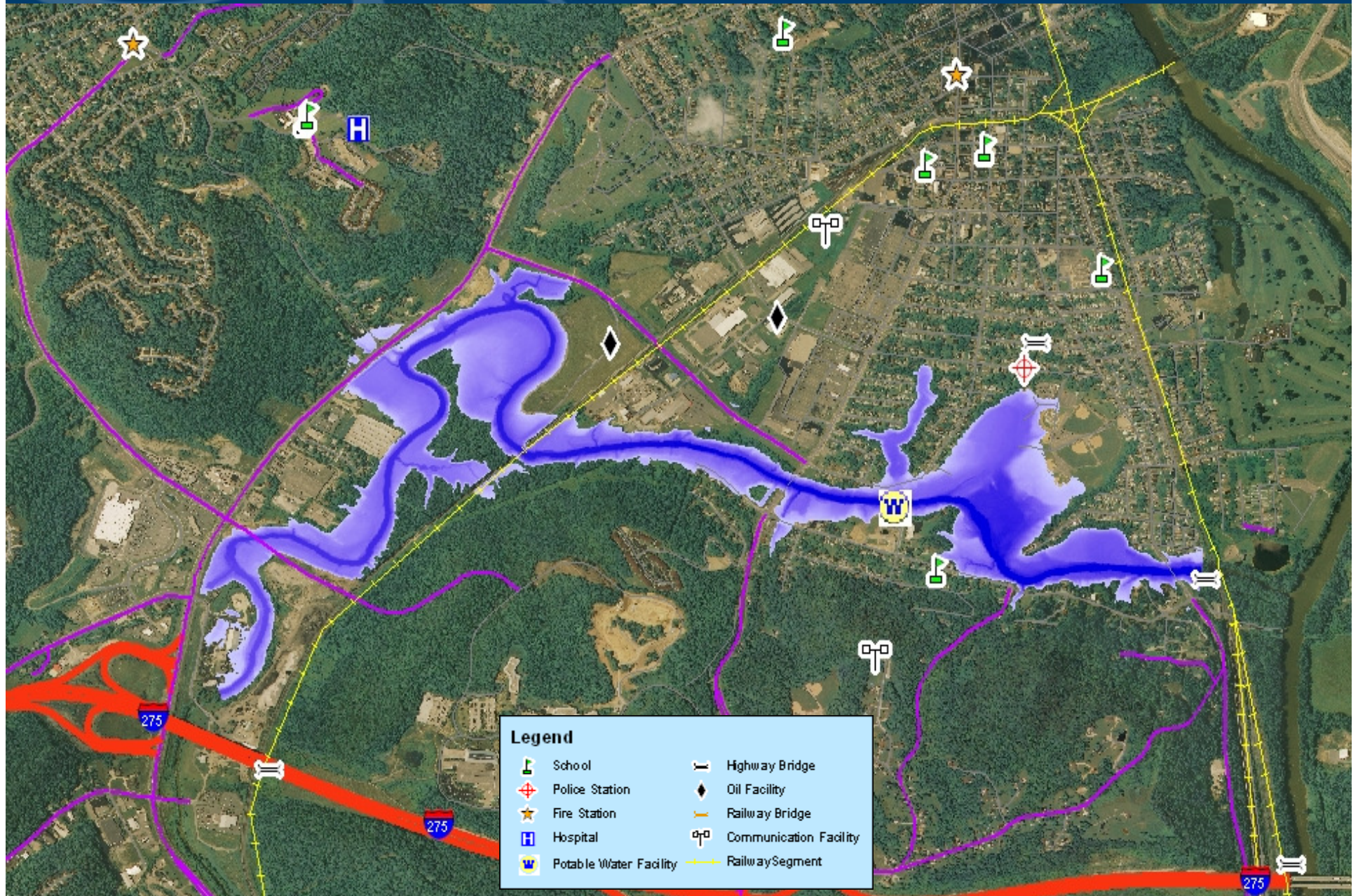
HAZUS Risk Assessment



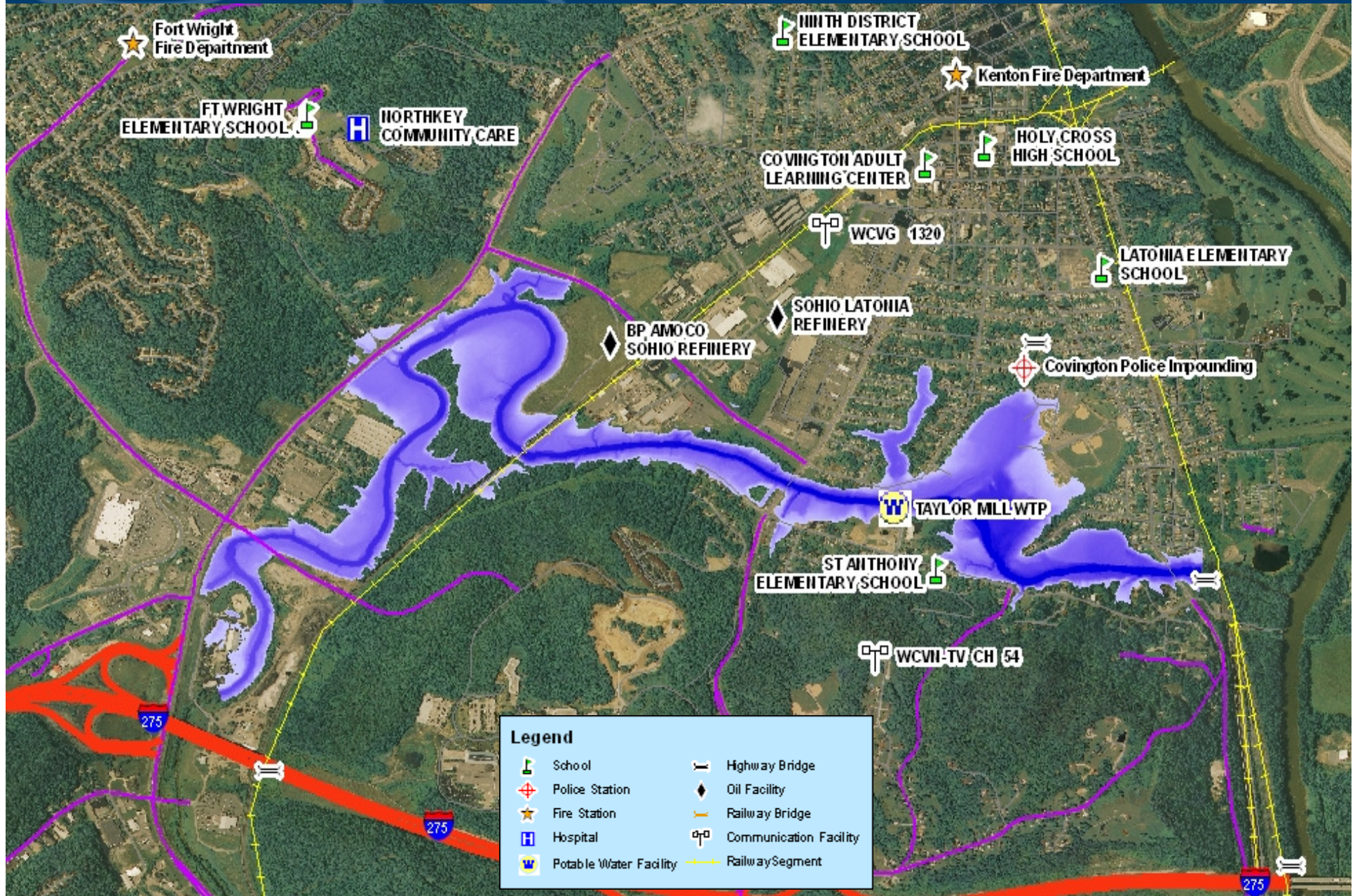
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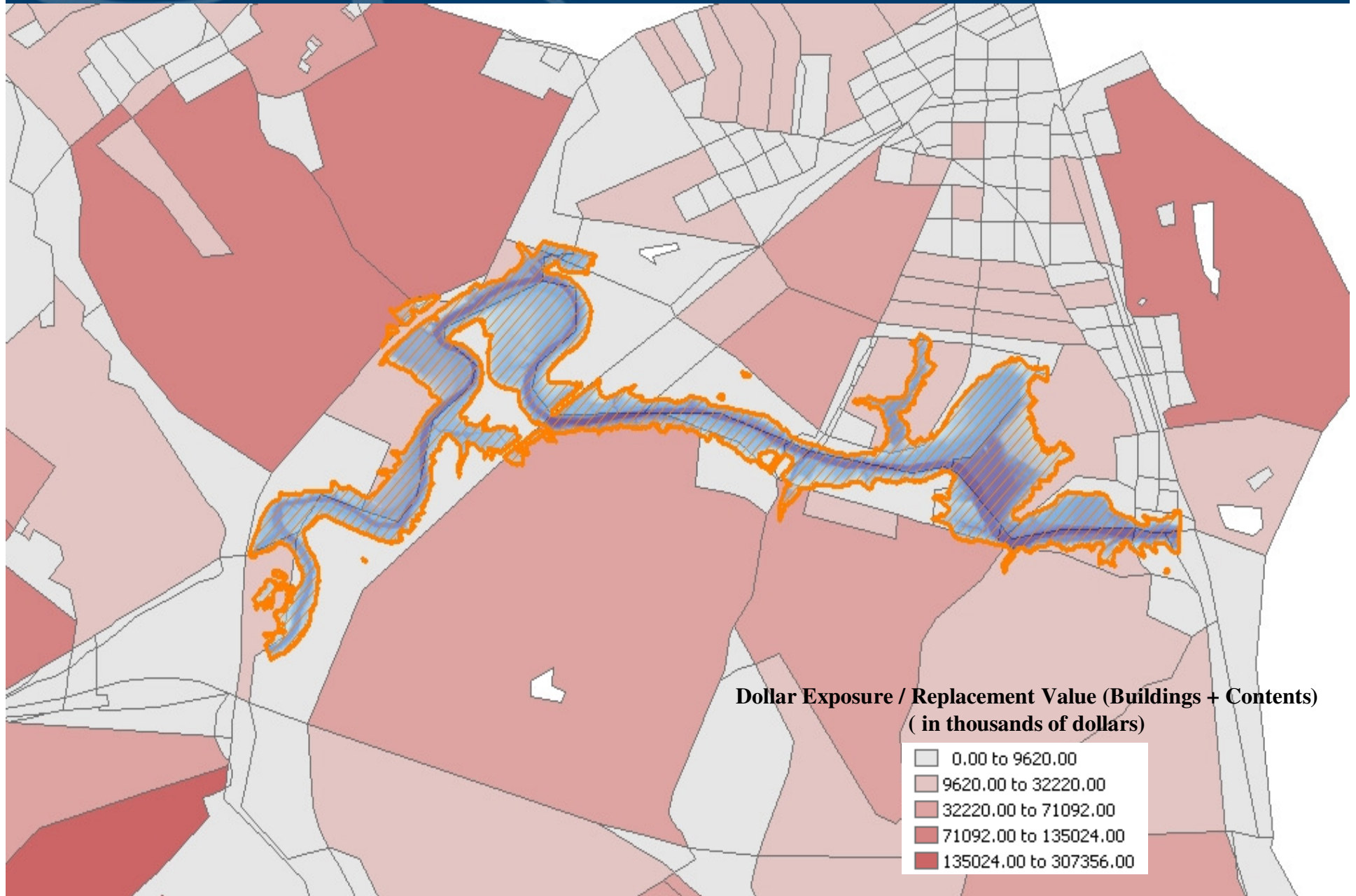
Overlay Inventory



Overlay Inventory



eg: Inventory of Total 'Dollar Exposure' at Census block level



Data

- HAZUS uses in-built data
- Loss estimations can be made more accurate by adding local data into HAZUS



HAZUS Process

- **Build a study area**
 - By State
 - By County
 - By Census Tract
 - By Census Block
- **Define Hazard**
 - Flood (Riverine / Coastal)
 - Hurricane
 - Earthquake
- **Import user data**
 - Terrain
 - Depth Grid
 - HEC-RAS Grid
- **Overlay Inventory**
 - Building Stock
 - Essential Facilities
 - High Potential Loss Facilities
 - Emergency Facilities
 - Transportation
 - Utility
- **Determine Damage**
 - Depth Damage Curves
 - Restoration Time
- **Estimate Losses**
 - Quick Look
 - Annualized Losses
 - Global Summary Report
- **Print Reports**
 - Tables
 - Maps



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HAZUS Result Applications

- Mitigation Alternatives
 - Identify at-risk areas (population / communities)
 - Land use Planning
- Response & Recovery
 - Post disaster damage assessment
 - Identify critical infrastructure
- Emergency Preparedness
 - Evacuation route creation



Mitigation Planning



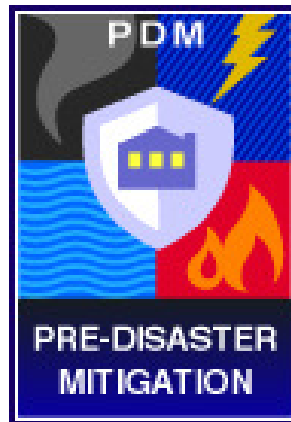
Mitigation planning activities includes:

- Local mitigation planning support
- Revised guidance
- Community incentives
- Participation by nontraditional stakeholders in project lifecycle

Products:

- National repository for Mitigation Plans
- Method to monitor risk reduction activities
- National Community Toolkit for Hazard Mitigation Planning

FEMA Hazard Mitigation Assistance (HMA)



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FEMA HMA Funding Opportunities

Eligible Activities	HMGP	PDM	FMA	RFC	SRL
1. Mitigation Projects	√	√	√	√	√
Property Acquisition and Structure Demolition	√	√	√	√	√
Property Acquisition and Structure Relocation	√	√	√	√	√
Structure Elevation	√	√	√	√	√
Mitigation Reconstruction					√
Dry Floodproofing of Historic Residential Structures	√	√	√	√	√
Dry Floodproofing of Non-residential Structures	√	√	√	√	
Minor Localized Flood Reduction Projects	√	√	√	√	√
Structural Retrofitting of Existing Buildings	√	√			
Non-structural Retrofitting of Existing Buildings and Facilities	√	√			
Safe Room Construction	√	√			
Infrastructure Retrofit	√	√			
Soil Stabilization	√	√			
Wildfire Mitigation	√	√			
Post-Disaster Code Enforcement	√				
5% Initiative Projects	√				
2. Hazard Mitigation Planning	√	√	√		
3. Management Costs	√	√	√	√	√



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Historical Event Data

- National Climatic Data Center (01/01/1950-07/31/2010):

- 27 events totaling, \$6.34 million in property damages, \$1 million crop damages, 2 deaths

Presidential Disaster Declarations (2009 dollars)

12/12/1978: \$30,733,216

02/24/1989: \$17,552,906



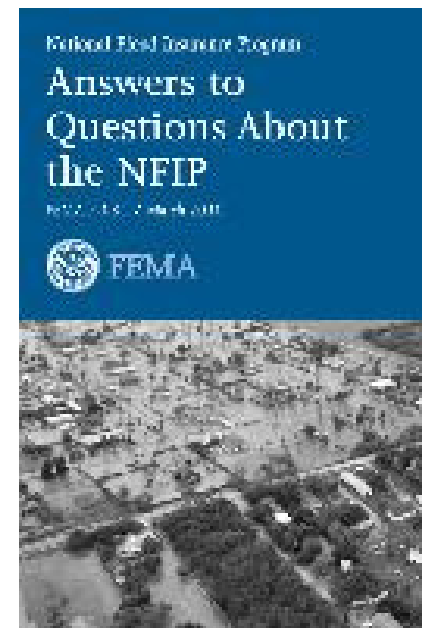
FEMA Outreach Programs

- National Flood Insurance Program: NFIP
- Community Rating System: CRS
- Hazard Mitigation Assistance (HMA) Grant Programs



NFIP

The NFIP is a Federal program enabling property owners in participating communities to purchase flood insurance protection against losses from flooding. Participation is based on an agreement between the local community and the Federal Government.



Community Rating System

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.

CREDIT POINTS	CLASS	PREMIUM REDUCTION SFHA*	PREMIUM REDUCTION NON-SFHA**
4,500+	1	45%	10%
4,000 – 4,499	2	40%	10%
3,500 – 3,999	3	35%	10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

*Special Flood Hazard Area
**Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage. The Preferred Risk Policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies. The CRS credit for AR and A99 Zones are based on non-Special Flood Hazard Areas (non-SFHAs) (B, C, and X Zones). Credits are: classes 1-6, 10% and classes 7-9, 5%. Premium reductions are subject to change.



Risk Communications

Risk communications includes:

- Tools to strengthen community capability to communicate about risk
- A foundation for local risk communications

Improves communications:

- Between FEMA and communities
- Between communities in a watershed
- Within communities

Risk MAP Products:

- Project communication assessment tool
- Project communication planning tool
- Customizable fact sheets



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Risk Communications

- Traditional Outreach
 - Websites with outreach materials
 - Regional and local training
 - Public meetings
- ‘Break the Cycle’ Outreach
 - Public Service Announcements
 - Videos on YouTube
 - Facebook Forum
 - WebEx
 - Webmap-based tools
 - Google Earth
 - CHAMPS

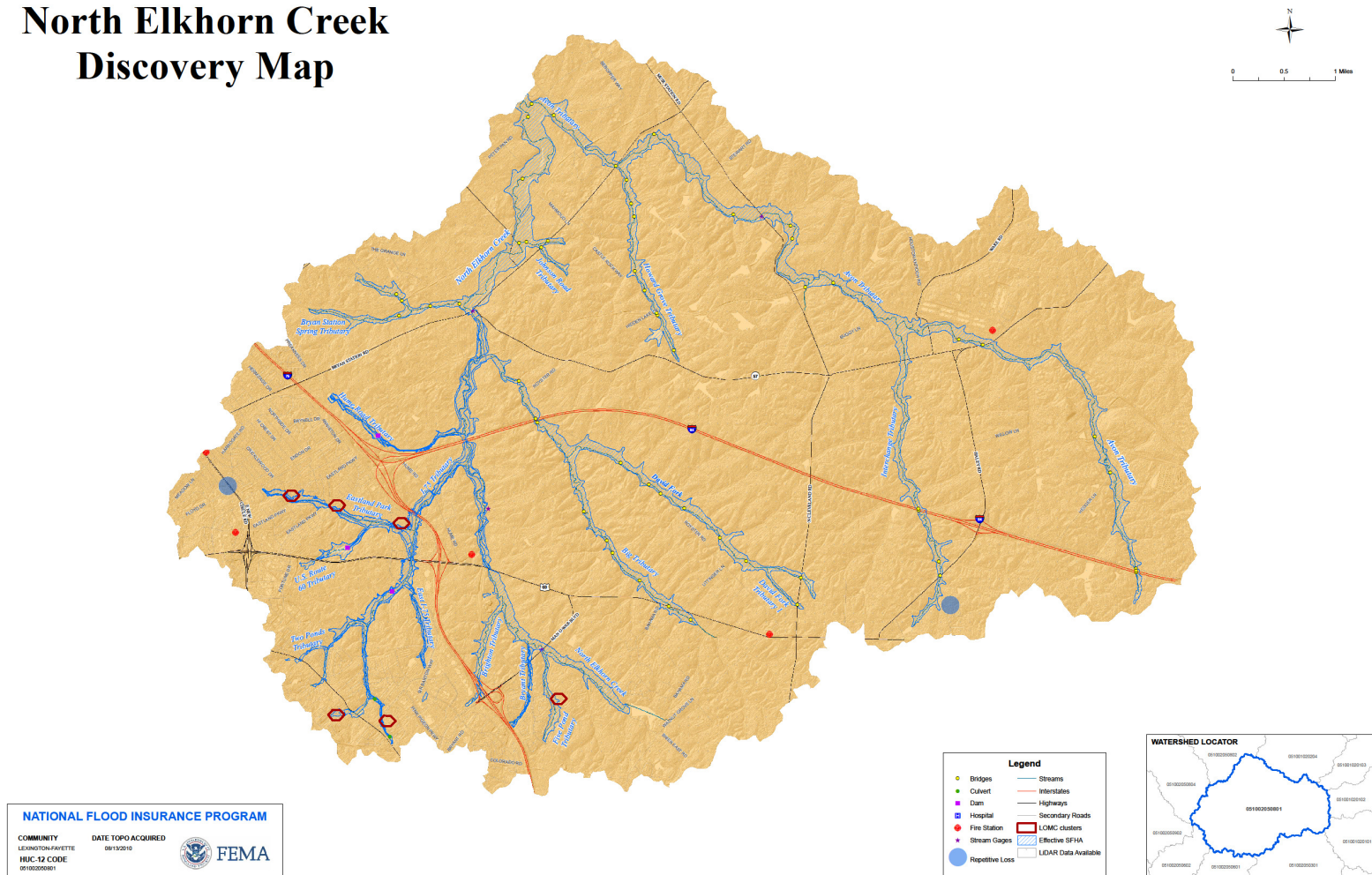
Project Meetings

- Discovery Meeting (November 22, 2010)
- Products Overview Meeting (December)
- Preliminary Data Delivery Meeting (January)
- Final Meeting (February) (includes presentation of Flood Risk Report)



Draft Discovery Map

North Elkhorn Creek Discovery Map



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